SECTION 2: BACKGROUND

2.1 LEGAL AUTHORITY

The Environmental Protection Agency (EPA) establishes Effluent Limitation Guidelines under the authority of Sections 301, 304, 306, 308, 402, and 501 of the Clean Water Act (CWA) (the Federal Water Pollution Control Act), 33 United States Code (U.S.C.) 1311, 1314, 1316, 1318, 1342, and 1361.

2.2 CLEAN WATER ACT

Congress adopted the Clean Water Act (CWA) to "restore and maintain the chemical, physical, and biological integrity of the nation's waters" (Section 101(a), 33 U.S.C. 1251(a)). To achieve this goal, the CWA prohibits the discharge of pollutants into navigable waters except in compliance with the statute. CWA sec. 402 requires "point source" discharges to obtain a permit under the National Pollutant Discharge Elimination System (NPDES). These permits are issued by EPA regional offices or authorized State agencies.

Following enactment of the Federal Water Pollution Control Amendments of 1972 (Pub.L. 92-500, October 18, 1972), EPA and the States issued NPDES permits to thousands of dischargers, both industrial (e.g. manufacturing, energy and mining facilities) and municipal (sewage treatment plants). As required under Title III of the Act, EPA promulgated effluent limitation guidelines and standards for many industrial categories, and these requirements are incorporated into the permits.

The Water Quality Act of 1987 (Pub.L. 100-4, February 4, 1987) amended the CWA. The NPDES program was expanded by defining municipal and industrial storm water discharges as point sources. Industrial storm water dischargers, municipal separate storm sewer systems and other storm water dischargers designated by EPA must obtain NPDES permits pursuant to Section 402(p) (33 U.S.C. 1342(p)).

2.2.1 BEST PRACTICABLE CONTROL TECHNOLOGY CURRENTLY AVAILABLE

In guidelines for a point source category, EPA may define Best Practicable Control Technology (BPT) effluent limits for conventional, toxic,[1] and non-conventional pollutants. In specifying BPT, EPA looks at a number of factors. EPA first considers the cost of achieving effluent reductions in relation to the effluent reduction benefits. The Agency also considers the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the

[1] In the initial stages of EPA CWA regulation, EPA efforts emphasized the achievement of BPT limitations for control of the "classical" pollutants (e.g., TSS, pH, BOD_5). However, nothing on the face of the statute explicitly restricted BPT limitation to such pollutants. Following passage of the Clean Water Act of 1977 (Pub.L. 95-217, December 27, 1977) with its requirement for point sources to achieve best available technology limitations to control discharges of toxic pollutants, EPA shifted its focus to developing BAT limitations for the listed priority toxic pollutants.

control technologies, non-water quality environmental impacts (including energy requirements), and such other factors as the Agency deems appropriate (CWA sec. 304(b)(1)(B)). Traditionally, EPA establishes BPT effluent limitations based on the average of the best performance of facilities within the category of various ages, sizes, processes or other common characteristics. Where existing performance is uniformly inadequate, EPA may require higher levels of control than currently in place in a category if the Agency determines that the technology can be practically applied. See "A Legislative History of the Federal Water Pollution Control Act Amendments of 1972," U.S. Senate Committee of Public Works, Serial No. 93-1, January 1973, p. 1468.

In addition, the Act requires a cost-reasonableness assessment for BPT limitations. In determining the BPT limits, EPA considers the total cost of treatment technologies in relation to the effluent reduction benefits achieved. This inquiry does not limit EPA's broad discretion to adopt BPT limitations that are achievable with available technology unless the required additional reductions are "wholly out of proportion to the costs of achieving such marginal level of reduction." See Legislative History, op. cit., p. 170. Moreover, the inquiry does not require the Agency to quantify benefits in monetary terms. See, for example, American Iron and Steel Institute v. EPA, 526 F. 2d 1027 (3rd Cir., 1975).

In balancing costs against the benefits of effluent reduction, EPA considers the volume and nature of expected discharges after application of BPT, the general environmental effects of pollutants, and the cost and economic impacts of the required level of pollution control. In past effluent limitation guidelines and standards, BPT cost-reasonableness removal figures have ranged from $0.21 to $33.71 per pound removed in year 2000 dollars. In developing guidelines, the Act does not require consideration of water quality problems attributable to particular point sources, or water quality improvements in particular bodies of water. See Weyerhaeuser Company v. Costle, 590 F. 2d 1011 (D.C. Cir. 1978).

2.2.2 BEST CONVENTIONAL POLLUTANT CONTROL TECHNOLOGY

The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with Best Conventional Pollutant Control Technology (BCT) for discharges from existing point sources. BCT is not an additional limitation, but replaces Best Available Technology (BAT) for control of conventional pollutants. In addition to other factors specified in sec. 304(b)(4)(B), the CWA requires that EPA establish BCT limitations after consideration of a two- part "cost-reasonableness" test. EPA explained its methodology for the development of BCT limitations in July 1986 (51 FR 24974).

Section 304(a)(4) designates the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids (TSS), fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979 (44 FR 44501). A primary pollutant of concern at construction sites, sediment, is commonly measured as TSS.

2.2.3 BEST AVAILABLE TECHNOLOGY ECONOMICALLY ACHIEVABLE

In general, Best Available Technology (BAT) effluent guidelines (CWA sec. 304(b)(2)) represent the best existing economically achievable performance of direct discharging plants in the subcategory or category. The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the processes employed, engineering aspects of the control technology, potential process changes, non-water quality environmental impacts (including energy requirements), and such factors as the Administrator deems appropriate. The Agency retains considerable discretion in assigning the weight to be accorded to these factors. An additional statutory factor considered in setting BAT is "economic achievability." Generally, EPA determines the economic achievability on the basis of the total cost to the subcategory and the overall effect of the rule on the industry's financial health. The Agency may base BAT limitations upon effluent reductions attainable through changes in a facility's processes and operations. As with BPT, where existing performance is uniformly inadequate, EPA may base BAT upon technology transferred from a different subcategory or from another category. In addition, the Agency may base BAT upon manufacturing process changes or internal controls, even when these technologies are not common industry practice.

2.2.4 NEW SOURCE PERFORMANCE STANDARDS

New Source Performance Standards (NSPS) reflect effluent reductions that are achievable based on the best available demonstrated control technology. New facilities have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the greatest degree of effluent reduction attainable through the application of the best available demonstrated control technology for all pollutants (i.e., conventional, non-conventional, and priority pollutants). In establishing NSPS, CWA sec. 306 directs EPA to take into consideration the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements.

2.2.5 PRETREATMENT STANDARDS FOR EXISTING SOURCES AND PRETREATMENT STANDARDS FOR NEW SOURCES

The CWA also defines standards for indirect discharges, i.e. discharges into publicly owned treatment works (POTWs). These are Pretreatment Standards for Existing Sources (PSES) and Pretreatment Standards for New Sources (PSNS) under sec. 307(b).

2.2.6 EFFLUENT GUIDELINES SCHEDULE

Clean Water Act section 304(m) requires EPA to publish a plan every two years that consists of three elements. First, under sec. 304(m)(1)(A), EPA is required to establish a schedule for the annual review and revision of existing effluent guidelines in accordance with sec. 304(b). Section 304(b) applies to ELGs for direct dischargers and requires EPA to revise such regulations as appropriate. Second, under sec. 304(m)(1)(B), EPA must identify categories of sources discharging toxic or nonconventional pollutants for which EPA has not published BAT ELGs under sec.

304(b)(2) or new source performance standards under sec. 306. Finally, under sec. 304(m)(1)(C), EPA must establish a schedule for the promulgation of BAT and NSPS for the categories identified under subparagraph (B) not later than three years after being identified in the 304(m) plan. Section 304(m) does not apply to pretreatment standards for indirect dischargers, which EPA promulgates pursuant to sec. 307(b) and 307(c) of the Act.

On October 30, 1989, Natural Resources Defense Council, Inc. (NRDC), and Public Citizen, Inc., filed an action against EPA in which they alleged, among other things, that EPA had failed to comply with sec. 304(m). Plaintiffs and EPA agreed to a settlement of that action in a consent decree entered on January 31, 1992. (Natural Resources Defense Council et al v. Whitman, D.D.C. Civil Action No. 89-2980). The consent decree, which has been modified several times, established a schedule by which EPA is to propose and take final action for eleven point source categories identified by name in the decree and for eight other point source categories identified only as new or revised rules, numbered 5 through 12. EPA selected the Construction and Development (C&D) category as the subject for new or revised rule #10. The decree, as modified, calls for the Administrator to sign a proposed ELG for the C&D category no later than May 15, 2002, and to take final action on that proposal no later than March 31, 2004. A settlement agreement between the parties, signed on June 28, 2000, requires that EPA develop regulatory options applicable to discharges from construction, development and redevelopment, covering site sizes included in the Phase I and Phase II NPDES storm water rules (i.e. one acre or greater). EPA is required to develop options including numeric effluent limitations for sedimentation and turbidity; control of construction site pollutants other than sedimentation and turbidity (e.g. discarded building materials, concrete truck washout, trash); BMPs for controlling post-construction runoff; BMPs for construction sites; and requirements to design storm water controls to maintain pre-development runoff conditions where practicable. The June 2002 proposal contained discussion of these issues and the public docket contains further information. The settlement also requires EPA to issue guidance to MS4s and other permittees on maintenance of post-construction BMPs identified in the proposed ELGs. Since EPA's proposal or final action did not contain requirements for post-construction BMPs, this guidance is no longer necessary and therefore was not fully developed. However, a draft of the maintenance guidance that was prepared while EPA was considering including options for post-construction BMPs is contained in the public docket.

2.2.7 NPDES PHASE I AND II STORM WATER RULES

The National Pollutant Discharge Elimination System (NPDES) is a permit system established under the CWA to enforce effluent limitations. Operators of construction activities, which include clearing, grading and excavation are required to apply for permit coverage under the NPDES Phase I and II storm water rules. Under the Phase I rule (promulgated in 1990), construction sites of 5 or more acres must be covered by either a general or an individual permit. General permits covering the Phase I sites have been issued by EPA regional offices and state water quality agencies. Permittees are required to develop storm water pollution prevention plans that include descriptions of BMPs employed, although actual BMP selection and design are at the discretion of permittees (in conformance with applicable state or local requirements).

Construction sites between 1 and 5 acres in size are subject to the NPDES Phase II storm water rule (promulgated in 1999). The construction activities covered under Phase II are termed small construction activities and exclude routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. Under the Phase II program, NPDES permit requirements for construction activities are similar to the Phase I requirements because they will be covered under similar general permits. EPA issued a new general permit that covers all sizes of construction sites subject to the NPDES rules on July 1, 2003.

2.3 POLLUTION PREVENTION ACT OF 1990

The Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13101 et seq., Pub. L. 101-508, November 5, 1990) makes pollution prevention the national policy of the United States. The PPA identifies an environmental management hierarchy in which pollution "should be prevented or reduced whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and disposal or release into the environment should be employed only as a last resort..." (42 U.S.C. 13103). In short, preventing pollution before it is created is preferable to trying to manage, treat or dispose of it after it is created. According to the PPA, source reduction reduces the generation and release of hazardous substances, pollutants, wastes, contaminants or residuals at the source, usually within a process. The term source reduction "...includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control. The term 'source reduction' does not include any practice which alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to or necessary for the production of a product or the providing of a service." In effect, source reduction means reducing the amount of a pollutant that enters a waste stream or that is otherwise released into the environment prior to out-of-process recycling, treatment, or disposal.

Although the PPA does not explicitly address storm water discharges or discharges from construction sites, the principles of the PPA are implicit in many of the practices used to reduce pollutant discharges from construction sites. These include controls that minimize the potential for erosion such as proper phasing of construction, retention of on-site vegetation and stabilization of disturbed areas as soon as practicable. These controls and practices are described in Section 5 of this document.

2.4 STATE REGULATIONS

States and municipalities have been regulating discharges of runoff from the construction and land development industry to varying degrees for some time. A compilation of state construction general permits and regulations was prepared to help establish the baseline for national and regional levels of control. Data were collected by reviewing state construction general permits, web sites, summary references, state erosion and sediment control and/or storm water management guidance

manuals. The state regulatory data are summarized in Section 3 and 7 of this document and the complete data sheets are included in Appendix D.